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ABSTRACT

In Scottish primary schools, "setting" refers to arranging pupils for a given curriculum area in separate classes with different teachers, based on pupils' attainment in that particular area. This research studied four Primary 7 classes in Scotland, in which setting was used for the teaching of mathematics and English in 3 of the 4 schools. Findings from observations of classroom practices in these classes were compared with findings from an earlier study of four Primary 7 classes in which setting was not used. The comparison findings indicated that there was little difference in the balance of the curriculum in setting and nonsetting schools. In both types of schools, there were marked differences between practice and 5-14 recommendations. Target pupils spent more time in whole class teaching situations in setting schools than in nonsetting schools. Setting was not related to the amount of time target pupils were engaged on task. There was no increase in the amount of time devoted exclusively to teaching in the setting schools. The dominant teaching approach in setting schools was instruction, with both set classes and mixed ability classes. In nonsetting schools, facilitating learning was the commonly noted teaching approach. Target students in setting schools spent more time involved in assessment than their counterparts in nonsetting schools. Overall, the time teachers spent assessing and recording pupils' progress was similar in setting and nonsetting schools. Recommendations were made regarding introduction of setting, grouping strategies, teacher allocation, resources, communication with pupils and parents, and evaluation of the effects of setting. (Contains 17 references.) (KB)

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Case Studies of Setting in Primary School Classrooms

An Extension to the Teachers' and Pupils' Days in the Primary Classroom Project

Joanna McPake
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Janet Powney
Julia Davidson

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SCRE
The Scottish Council for Research in Education

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Executive Summary

1. The study

This report presents the findings from a study of four Primary 7 classes, in which setting was used for the teaching of mathematics (and also English in three of the four schools). Findings from observations of classroom practice in these four classes were compared with findings from an earlier study of four Primary 7 classes in which setting was not used. The research, which was funded by the Scottish Office Education and Industry Department (SOEID) and conducted by a team of researchers from the Scottish Council for Research in Education (SCRE) between September 1998 and March 1999. The study also involved interviews with pupils and class teachers and, in the case of the four setting schools, with headteachers and representatives of the local authorities concerned.

It is important to bear in mind that the size of the sample on which the findings reported here are based is too small to allow for generalisations to other Scottish primary schools. The aim of the study is to raise issues for discussion rather than to provide a detailed national account of current setting practice.

2. Previous research on setting

Setting means arranging pupils for a given curriculum area in separate classes with different teachers, basing this re-grouping on pupils' attainment in that particular area. Previous research on the impact of setting on student attainment has been inconclusive. There is some evidence to suggest that setting benefits - to some degree - high achieving students, but has negative effects on low achievers. Over the whole cohort these positive and negative effects cancel each other out. Furthermore, it is clear from earlier research that changes in attainment are brought about by changes to lesson content, pace and teaching style which teachers introduce once sets have been established. A key question is therefore whether such changes can only be brought about when setting is in place, or whether they can be introduced independently of setting.

3. The organisation of maths and language teaching in Primary 7

Maths and language are the curriculum areas in which setting is most commonly used, in setting schools. In non-setting schools, maths and language are usually taught through within-class ability groups.

Teaching methods differ in schools in which within-class ability grouping is used, compared with those which use sets. In the former, teachers tend to work with each group in turn, reviewing work, teaching new topics and then setting work for pupils to complete independently while the teacher moves on to another group. Whole class teaching was rarely observed in the teaching of maths and language in these schools. In the latter, whole class teaching, with time for pupils to work on tasks independently is the commonest approach.

4. Learning and teaching in setting and non-setting classes

The following conclusions were reached from comparing practices in the four setting and four non-setting Primary 7 classes.

4.1 Balance of the curriculum

- There was little difference in the balance of the curriculum in setting and non-setting schools.
- In both types of school there were some marked differences between practice and 5-14 recommendations.

4.2 Learners' classroom experiences

- 'Target pupils' (ie those selected for observation by the researchers) spent more time in whole class teaching situations in setting schools than in non-setting schools, both when organised in sets and when in mixed-ability classes.
- Setting did not make a difference to the amount of time target pupils were engaged on task: in both setting and non-setting schools this was, on average, around 65% of the time.

4.3 Teachers' teaching styles

- There was no increase in the amount of time devoted exclusively to teaching in the setting schools.
- The dominant teaching approach in setting schools was instruction (transmitting knowledge, explaining points of direct relevance to the curriculum), with both set classes and mixed ability classes.
- In non-setting schools, facilitating learning (helping pupils to learn by extending their thinking, challenging the outcomes or conclusions pupils have reached, or encouraging them to reflect on their own learning processes) was the most commonly noted teaching approach.

4.4 Assessment

- Target pupils in setting schools were observed to spend more time involved in assessment than their counterparts in non-setting schools - on average, around 20% of the time, when in sets.
- The difference is attributable principally to teachers' increased use of 'instant' classroom-based assessment when teaching sets - ie the more frequent use of spelling and mental arithmetic tasks, and other types of quick revision and memory tests.
- Overall, the amount of time teachers spent assessing and recording pupils' progress was similar in setting and non-setting schools but was concentrated into the maths setting time, in setting schools.

5. Recommendations for managing setting

Setting presents a number of challenges to school managers in terms of preparation for the introduction of setting, organisation and evaluation. The following recommendations are based on the experiences of class and headteachers in the four setting schools.

5.1 Introducing setting

- Careful planning is necessary and it is important to ensure that teachers are committed to the principle and share a common understanding of what is involved.
- A written account of the rationale for setting and the procedures in place would help to ensure continuity of experience for pupils and the sharing of best practice.

5.2 Grouping strategies

- To obtain sets of pupils with similar attainment levels, clear criteria and careful assessment are required.
- Arrangements need to be reviewed regularly to take account of pupils' progress and to adjust sets accordingly.
- The system needs to be flexible enough to allow for pupil movement.

5.3 Teacher allocation

A number of (sometimes conflicting) principles by which teacher allocation to sets can be decided were raised in the study:

- the importance of rotating teachers across sets to ensure that teachers have experience teaching at all levels and do not lose contact with their class members entirely in the set subjects
- the critical placing of the teacher with the best understanding of the subject (the case was made by different headteachers for placing this teacher with the top, the middle and the bottom set)
- the importance of matching teaching skills with the personality mix of the particular groups of pupils in each set.

5.4 Resources

Careful consideration needs to be given to:

- issues of space (particularly if some sets are bigger than the average class size)
- the time and logistics of moving pupils around the school

and

- the deployment of additional teachers as a way of increasing the number of sets while reducing set sizes.

5.5 Communication with pupils and parents

- Some schools and some authorities have been wary of explaining in detail what setting involves.
- The experience of one school which actively sought the views of parents and pupils was that these were predominantly supportive.

5.6 Evaluating the effects of setting

- Given that the aim of setting is to raise standards of attainment, it is important that schools and authorities evaluate the effectiveness of the approach.
- Earlier research has shown that this is a complicated task.
- Where standards have risen, this can be attributed to a number of factors, including the use of setting, but setting on its own, without making other changes, is unlikely to be effective.

■ 6. Conclusions

While whole class teaching and instruction as a teaching approach were more common in schools which set than those which did not, in our study there was no evidence that these changes increased pupil engagement on task or raised standards of attainment in the schools concerned. Further debate on the value of the kinds of changes to learning and teaching practices which setting appears, from this research, to support is needed. This will help to establish whether current moves to promote setting are to be encouraged.

1 Introduction: what is setting?

'Setting' means arranging pupils for a given curriculum area in separate classes with different teachers, based on pupils' attainment in that particular area. The main alternative forms of class organisation are 'streaming' (where pupils are permanently assigned to a class on the basis of some general measure of ability) and 'mixed-ability' classes where each class has the full range of ability within it. Mixed ability classes are often taught in groups, which may represent the full ability/attainment range or may be based on attainment, in which case they are referred to as 'within-class attainment groups' (or commonly by teachers as 'ability' groups).

Whilst setting is a common form of organisation of classes in the middle and upper secondary schools, it has not been widespread in lower secondary and upper primary classes since the introduction of comprehensive education in the late 1960s. The (re)introduction of setting in upper primary and lower secondary schools was discussed in 1996 in the context of attempts to improve attainment at all levels as required to meet the targets for attainment set by the Advisory Scottish Council for Education and Training Targets (ASCETT) for the year 2000. In the Report *Achievement for All* (SOEID, 1996a), HM Inspectors used several sources of evidence to identify the strengths and weaknesses of Scottish schools and to 'report on the organisation and management of classes in primary and early secondary education with particular reference to the relative merits of organising classes by mixed ability, streaming and setting' (SOEID, 1996a, p4). These sources included reports of school inspections, the Assessment of Achievement Programme (AAP) survey findings and the results of the third international survey of mathematics and science.

The HMI report noted the merits of setting as being that it:

- reduces the time spent by teachers managing the class, and enables more direct teaching to occur
- reduces the compression of attainment ... by making it easier for each pupil to progress at an appropriate rate; and
- allows more effective targeting and matching of teaching style and resources, including learning support, to pupils' needs. (SOEID, 1996a, para 3.20)

In their report, HMI suggested that these advantages are particularly strong in secondary schools, where they urged that, overall, 'increased use of setting should make class management more feasible'. For primary schools the advice was less forceful and was that 'In large primary schools, with more than one class at each stage, the effectiveness of setting pupils in P6 and P7 for English and mathematics should be carefully considered'. In both cases a main thrust of the rationale for setting is that it reduces time spent on organising and managing learning to allow more time for 'direct teaching'.

The term 'direct teaching' is interpreted widely by HMI in the *Achievement for All* report, and indeed is defined in terms of many of the characteristics of effective teaching, including:

- varied questioning of pupils and giving clear explanations in a range of contexts;

- listening and responding to pupils' answers and views;
- sharing objectives with pupils when setting tasks which challenge and motivate;
- monitoring the progress and pace of learning of individuals within groups; and
- responding to individual needs by identifying next steps in learning.

(SOEID, 1996a, p26)

Teaching with these characteristics clearly requires a high level of teacher-pupil interaction, and possibly for this reason, whole class teaching appears to have become virtually synonymous with 'direct teaching'. Group or individual teaching necessarily means that those not in the group being taught are working on their own and may thus experience no interaction with the teacher over long periods of time.

2 This Report

This report presents the findings from research based on case studies of eight Primary 7 classes, across Scotland. Four of these classes were selected to take part in a study specifically focusing on the use of setting in primary schools. The other four classes participated in an earlier, more general, study of pupils' and teachers' daily experiences of primary schools (see McPake *et al* 1999). None of the schools in this latter group made use of setting. The research techniques used in both studies were similar, allowing for comparisons between the two groups of schools. (The research methods are summarised in Appendix A.)

As our findings are based on case study data from a small number of schools, they cannot be generalised for all Scottish primary schools. The goal of this study is to raise issues for discussion rather than to provide a detailed national account of current setting practice.

Both studies were funded by the Scottish Office Education and Industry Department (SOEID) and the work was conducted by a team from the Scottish Council for Research in Education (SCRE). The four case studies of setting schools were conducted between September 1998 and March 1999. The four non-setting schools participated in our original study for which research was carried out over 2 years between August 1996 and August 1998. The findings from this earlier study are described in *Teachers' and pupils' days in the primary classroom* (McPake *et al* 1999). The next chapter of this report summarises findings from earlier research into the impact of setting. Thereafter, the principal findings from the study are reported in two chapters which consider learning and teaching in setting and non-setting schools, and the management of setting. The last chapter summarises the findings and discusses the implications for practitioners and policy makers, and for further research.

3 Previous Research on Setting

3.1 Studies of setting

The aim of setting is to raise standards of attainment in schools where it is introduced. Other forms of classroom organisation and other teaching approaches may also be effective. In this chapter, we review earlier research on the impact of setting and within-class ability grouping and consider other approaches which previous studies have found to be effective in the raising of attainment.

Setting has been most commonly practised for mathematics and English and this is reflected in the research studies, most of which concern one or other or both of these subjects. A comprehensive review of research up to 1986 on attainment grouping in primary schools by Slavin (1987) found fewer studies of setting meeting his best-evidence criteria than there were studies of streaming, which was common in primary schools up to the later 1960s. The results of the setting studies were equivocal in relation to learning outcomes, some finding positive effects on achievement of those in set classes compared with mixed ability organisations and some finding negative effects. When effects on students of different attainment levels are considered, the general finding from across several studies seems to be that for high achievers setting in the subject has a neutral to positive effect, whilst for low achievers the effect is neutral to negative. Overall, the gains for one attainment group tend to be balanced by the losses for the other. However, Askew and Wiliam (1995) point out that this could be an artefact of the tests used and of the different 'headroom' allowed for the more and less able pupils.

Part of the difficulty in finding a clear-cut answer to the effect of setting is methodological. Most studies fail to distinguish between the effect of re-grouping into attainment-based sets and the effect of using differentiated materials and teaching methods. Although it appears obvious that the pace and content of lessons would be varied when pupils are grouped by attainment, this presents difficulties when trying to decide what actually is the cause of any change. Thus some studies have compared set classes all treated in the same way with whole class teaching in mixed ability classes. Perhaps not surprisingly, these studies have shown that 'regrouping for reading and/or mathematics can be effective if instructional pace and materials are adapted to students' needs, whereas simply regrouping without extensively adapting materials ... is ineffective' (Slavin, 1987).

However, the comparison of setted classes with 'whole class teaching in mixed ability classes' is not a particularly appropriate one to make since whole class teaching in primary classes is rare in Scotland, certainly for language and mathematics. Thus the class organisation with which setting should be compared is the common one of within-class attainment grouping, where small groups based on attainment in language or mathematics are formed within a single class. These groups are separately taught and then given assignments to do whilst the teacher gives attention to other groups. Whilst there is no research that directly compares within-class attainment grouping with setting, each has been compared with mixed ability whole class teaching and within-class attainment groups have been compared with within-class mixed ability groups.

3.2 Studies of within-class attainment grouping

In the studies comparing within-class attainment grouping with whole class teaching there is unequivocal evidence for the effectiveness of within-class attainment grouping in raising the achievement of all pupils (eg Dewar, 1964; Smith, 1960; Spence, 1958), and particularly for low achievers (Stern, 1972).

More significant than the findings of individual studies are the outcomes of an extensive and carefully conducted meta-analysis of studies of within-class grouping by Lou et al (1996). Their analysis of 51 studies showed that 'on average, students learning in small groups within classrooms achieved significantly more than students not learning in small groups.' (Lou et al, 1996, p439). However these studies included both those in which the teaching and materials were adapted to the small groups and those where the treatment was the same as in the whole class situation. When these were separated, the researchers found, echoing the finding of Slavin, that there were significant differences between the whole class and small class arrangements only when there were differences in the treatments given in the two situations. Thus the effect of grouping appears to result from the way in which teaching is adapted to the groups rather than just to the physical situation in which the pupils are learning. They found that the extent of the effect was greatest when groups were formed on the basis of attainment specific to the subject being taught but with other information taken into account (subject attainment alone was no more effective than using general ability as a basis for grouping). Low and high achieving pupils were the ones to gain most. Group size was also a relevant factor, a size of 3 or 4 being optimum.

Reasons for the differential effect of attainment grouping on pupils of average attainment were offered by Askew and Wiliam (1995) in terms of group interactions:

> There is substantial evidence that the extent to which a pupil gives detailed explanations is a good predictor of how much pupils will benefit from small-group working. Not surprisingly, it is the higher-achieving pupils that do more explaining when working in a mixed-ability group and so gain most. In mixed-ability groups it is the lower-attaining pupils who ask the most questions. Hence in groups with a wide spread of attainment, the middle-attainers miss out, as they neither seek nor give help.
>
> (Askew and Wiliam, 1995, p 38.)

These authors go on to claim that in groups with a narrow range of attainment, there is less asking for and giving help. These explanations presuppose some group interaction about the learning task. Classroom observations, however, have shown that such interaction is infrequent and often explicitly discouraged by teachers who ask pupils to attend to their own work only, or that interaction is implicitly prevented by the seating arrangements in the class (see Part 1 of this volume).

Some studies investigated difference in attitudes related to grouping. Overall these indicated that within-class grouping was positively related to attitudes to the subject but there was no significant difference in other attitudes or in self-concept.

3.3 Impact of different forms of classroom organisation on learning and teaching

In the absence of studies comparing within-class grouping by ability with setting, there is research that illuminates the pros and cons of these class organisations. Within-class grouping necessarily entails pupils working on their own, individually or as a group, whilst the teacher works with other groups. When this is individual work, the time on task has been shown to fall as compared with those occasions when the teacher is present or when there is collaborative group work (see the related previous study McPake et al 1999),

whilst Brophy and Good (1986), among others, have reported that achievement suffers as a result of a large amount of unsupervised work. Whole class teaching is one way of increasing supervision. When combined with setting, it is argued, the difficulty of simultaneously addressing the various needs and interests of a class of wide-ranging abilities is removed.

However, setting presents a number of practical problems. The loss of teaching and learning time in moving from mixed ability classes to sets for certain lessons has been noted (Arlin, 1979). Furthermore, the potential for setting is limited by the size of the school and the number of staff available and so in many cases, setting will only slightly reduce the range of ability. Thus in some sets where whole-class teaching is the norm, there will be the same disadvantages for pupils as have been reported for whole class teaching with mixed ability classes viz. that whole class teaching does not address the needs of individual pupils and 'there is a danger that the faster learner will not feel challenged and become bored, while slower children feel frustrated and experience a sense of failure' (Edwards and Woodhead, 1996, p5). The solution put forward in this case is to create groups within the set so that greater differentiation in teaching can be provided. In this way the main benefit is for the teacher who has a reduced range of ability among the groups to cater for. It may then be possible to minimise the number of groups and maximise opportunities for 'direct teaching'.

3.4 Studies of other ways of raising levels of attainment

Since the main thrust of the arguments in favour of setting is to raise attainment levels, it is relevant to consider, if only briefly, the research evidence on other ways of achieving this end. For example, in their review of research in mathematics, Askew and Wiliam (1995) noted the following, in addition to small positive effects due to grouping by attainment, as being associated with improvements in performance:

- linking practical mathematics to abstract tasks
- taking steps to elicit and address pupils' mathematical misconceptions
- careful choice of examples
- effective use of questions
- using praise effectively
- assessing progress regularly and using this to adapt learning experiences
- use of calculators in learning
- use of computers in learning
- using a wide range of problem-solving situations
- co-operative group work.

Similarly, Medwell et al (1998) identified for the TTA characteristics of the beliefs and practices of effective teachers of literacy.

Many of these features are included in the notion of 'formative assessment' whose effect on attainment was the subject of an extensive research review by Black and Wiliam (1998). As a result of reviewing over 250 studies these authors revealed evidence that changes in assessment procedures are effective in raising levels of achievement. The key features of assessment that would accomplish this were identified as:

- the provision of effective feedback to pupils
- the active involvement of pupils in their own learning
- adjusting teaching to take account of the results of assessment

- a recognition of the profound influence of assessment on the motivation and self-esteem of pupil
- the need for pupils to be able to assess themselves and understand how to improve their achievement.

These are at the heart of pupil-teacher interaction and the evidence is that when implemented they have a greater effect on achievement than is reported for changes in class organisation. However some forms of class organisation are likely to facilitate the implementation of these features of effective teaching more than others and what is most effective may vary among teachers. This suggests that the particular class organisation for a subject should be selected on the basis of the degree to which it facilitates opportunities for teachers to use assessment to further pupils' learning, to provide pupils with feedback in the form of advice about how to improve their work and for pupils to take part in assessing their own work.

3.5 Summary and discussion

The research reviewed here leads to the following conclusions:

- There is no evidence from previous research that setting at the primary level has any overall effect on pupils' achievement.
- There is a slight advantage of setting for higher achieving pupils and a slight disadvantage for lower achieving pupils.
- Grouping pupils by attainment within a class, per se, does not have a significant effect on achievement unless teaching is adapted to take advantage of small groups.
- Within-class attainment grouping raises achievement compared with whole class teaching.
- Grouping by attainment in the subject has a greater effect than grouping by general ability.
- Within-class grouping is positively related to students' attitudes.
- There are other aspects of the learning environment which are associated with effects on learning that are at least as large as any associated with grouping.

Looking across the research findings, it appears that what raises standards is the attention that can be given to challenging each pupil to learn at an optimum pace. This pace will not be the same for all and neither will the events that provide appropriate challenge be the same for all. Since sustained individual attention for all pupils is not possible, narrowing the attainment range of the group that a teacher interacts with at a particular time improves the chance of providing the appropriate challenge. Within-class attainment grouping is one way of doing this, but still leaves the teacher with the full range of ability to deal with. Setting is another way of reducing the range and means that a teacher's preparation need only deal with one attainment-based group. However, there will generally still be a considerable range within the set and thus whole class teaching in sets may incur the same disadvantages for those at the extremes as are found in whole class teaching of mixed ability classes. Furthermore, any advantages of setting may be offset by loss of time in reorganising classes.

The lack of research comparing setting with within-class attainment grouping lends particular importance to the study reported here. The next chapter presents our findings relating to various aspects of learning and teaching in four P7 classes where setting was practised for maths and English, and compares these with findings from an earlier study of four P7 classes in which within-class attainment grouping was used for these subjects.

4 The Organiation of Maths and Language Teaching in Primary 7

In this chapter we look briefly at policy and practice in relation to the teaching of maths and language in the eight Primary 7 classes we observed. These are the two curriculum areas most commonly selected for setting in schools which set. In schools which do not set, maths and language are generally taught through within-class ability groups. Other curriculum areas are taught in a variety of ways in both setting and non-setting schools, but mixed ability groups or classes are the norm, with teachers using whole class teaching, group work, independent work and collaborative work as seems appropriate.

■ 4.1 Within-class ability groups

The use of within-class ability groups has been standard practice in Scottish primary schools. From our observation of Primary 1 classes, it appeared that schools had different policies on the point at which children are first allocated to groups. In some schools this occurred early in the first term, while others waited until after Christmas or later before making the decision. Some schools used either commercially available tests or tests of their own devising to help to determine where children should be placed. In other schools, the class teacher used her own judgement. Practice may have changed, since our observations were carried out, as a result of the introduction of baseline assessment.

The rationale for teaching via ability groups is based on the notion that children's linguistic and mathematical abilities vary considerably even at age 5. Differences in ability are attributed to a range of factors, which include the influence of educational experiences before starting school at home or in a pre-school setting and possibly innate linguistic and mathematical aptitudes. By dividing children in a class into ability groups, the teacher can differentiate work more efficiently and target support more appropriately.

It is widely recognised that differences between ability groups tend to increase over time, so that by Primary 7, the gap between pupils in the top and bottom groups is often wider than was the case when the same children were in Primary 1. This can be most obvious in relation to maths, where, for example, one Primary 7 class in the original study contained pupils working towards level E of the 5-14 maths curriculum and others working towards level B. It is likely that the gap between high and low ability students would widen over time in any case, even if pupils were taught as a whole class throughout their primary education. However, it is not clear whether the practice of ability grouping contributes to the widening of the gap (by creating rigid boundaries between ability groups which children find ever more difficult to cross, as they grow older), reduces it (by enabling low ability pupils to work effectively at their own pace) or has no effect.

The number of ability groups in one classroom vary from school to school. The norm appears to be three or four groups, depending on the size of the class. No class observed had fewer than three ability groups; one class had six, on the basis that the range of abilities within the class was very wide indeed. Groups are not always of the same size. On average, there are 7 or 8 children in a group, but numbers obviously depend on the number of children in the class and the number of groups in operation. In addition, teachers may

divide the number of children unevenly across groups, for example on the basis that the very lowest ability children need more attention from the teacher and should therefore be in a smaller group.

Children are not necessarily placed in the same ability groups for language and for maths, although in practice there is often little difference in the constitution of the two sets of groups. In one or two schools in our original study, there were more maths ability groups than language ability groups (or vice versa) within the same class.

Pupils appear not to be told specifically - in most cases - that they are working in ability groups. Teachers usually give groups a name (e.g. 'the motorbikes'), a colour (the 'red' group) or a symbol (the 'triangles') which are deliberately non-hierarchical, to designate each group. However, it is common knowledge even among very young pupils that the groups represent high, average and low ability.

In most of the classrooms in our original study, pupils did not sit in ability groups. In part this reflects the potential for differences between the two sets of groups for language and maths. More probably, teachers are concerned to avoid establishing social groupings within the class which are based largely on ability. (The issue of the physical arrangement of the classroom is discussed in more detail in McPake *et al.* 1999.) However, in two of the four non-set Primary 7 classes, we observed seating arrangements based loosely on ability groupings. This arrangement enabled the teachers to move round the room working with each group in turn, rather than calling pupils out to work with the teacher in a designated area, as happens in classrooms where pupils sit in mixed ability groups.

Teachers' practice in teaching ability groups varied little from school to school. Standard practice was to devote most of the morning teaching to language and maths (the main exceptions to this rule being where specialist areas needed to be timetabled in the morning). Most teachers set out the tasks for each ability group (e.g. in writing on the blackboard or on cards prominently displayed) and expected pupils to follow established routines in terms of working independently on tasks set while the teacher focused on one group at a time. Teachers aimed - usually successfully - to see each group at least once in the course of the morning, to review work in progress, teach new areas, set new tasks and provide support for pupils in difficulty. Some teachers also spent time 'patrolling' the classroom while pupils worked on their various tasks, to monitor progress and work with individuals as necessary. Other teachers, particularly those with large classes or large numbers of groups, found it impossible both to cover all groups in the time available and to allow time for work with individuals.

The use of ability group teaching for language and maths meant that pupils rarely experienced whole class teaching in these curriculum areas. Setting up maths or language work to be completed collaboratively was also very uncommon.

One of the Primary 7 teachers who participated in the original study organised her ability groups somewhat differently from the others. She used a 'target setting' approach (described in more detail in Chapter 5) whereby groups of pupils set their own targets for the week ahead for language and maths work and then determined how to meet these, working as individuals, as a group on their own or as a group with the class teacher. The amount of time the teacher spent working with language and maths groups and the focus of the teaching was therefore determined by the pupils, although the teacher was actively involved in the group's discussions about which targets to set and how to organise the week. It is not clear whether patterns of group teaching, group work and individual work varied greatly from those observed in other classrooms as a result of this practice, but

reviewing progress weekly rather than daily meant that the teacher probably engaged in less task management and was therefore free to spend more time teaching the group or individuals as a result.

4.2 Sets

The reintroduction of setting in primary schools in Scotland is a relatively recent development, supported by the HMI report of 1996, although some schools had begun experimenting with setting before this. (See Chapter 1 of this report for further discussion of the policy background relating to setting.) HMI comments made reference to the use of setting in large primary schools, with pupils in P6 and P7. However, the schools which took part in our study represented a wider range of contexts for setting, in terms both of school size and of the ages of pupils involved. Only one was a large primary, and only one used setting only in P7. The others all started setting earlier than P6, the youngest age group with which setting was used being P2, in one school. (Further details about the schools which used setting can be found in Appendix A.) In all the setting schools in this study, maths was taught wholly or mainly through sets. In one school, all aspects of language were also taught through sets, while in two others, aspects of language work (writing in one; spelling and dictation in the other) were taught through sets.

Ways of grouping pupils into sets are discussed in more detail in Chapter 6. The rationale for setting in all schools, however, is similar to that underlying the use of ability groups, namely that children within any one class or year group are held to have widely differing abilities in language and maths. Grouping pupils by ability, whether within the class or across classes but within sets, enables teachers to differentiate and to target support and resources more efficiently. As with within-class ability grouping, schools which set report ever-widening gaps between the various sets, so that movement across sets becomes more difficult over time. This was the experience of the schools in this study which operated setting from P2 and P3 upwards.

In contrast with within-class ability groups, sets tended not to be given names or symbols. Teachers usually referred to 'Mrs Smith's group' and 'Mr Brown's group'. However, as with ability groups, pupils were all aware that placement in sets related to ability, and knew where they stood in relation to the other pupils in their year group or even (in the case of the schools which operated settings across year groups) in relation to the whole school.

The way in which maths and language were taught in sets differed quite markedly from practice in schools operating within-class ability groups. Pupils still generally sat at tables, because the classrooms they used for their set lessons were - in most cases - already organised in this way. However, this form of classroom organisation did not bear much relation to the style of teaching adopted. Standard practice was for the teacher to introduce the day's work from the front of the room, addressing the whole class. In some sets, the first activity was always a test: tables, mental arithmetic, spelling, etc. Sometimes these were written tests and sometimes oral tests with a high 'public performance' element. For example, in some classes, pupils had to stand until they had correctly answered a question, when they could sit down. Other 'starting' elements included reviewing the previous lesson's work or presenting a new topic, again with the teacher generally standing at the front of the room and giving a 'mini-lecture' or engaging in question and answer sessions with students. These activities would lead into the allocation of tasks, which pupils were generally expected to complete as individuals: collaborative work was rarely observed in sets. Once pupils were working on these tasks, teachers would 'patrol' the classroom,

monitoring progress and working with individuals as necessary. Towards the end of the lesson, the teacher might stop the class and review what had been done, set homework, refer to what the class would be doing next time, again from the front. Thus whole class teaching, with time for pupils to work independently on tasks as individuals, was the norm for classes taught in sets.

4.3 Summary

- Practice in teaching language and maths in Scottish primary schools is based on the assumption that children's abilities in these areas differ widely.
- The norm has been for class teachers to allocate pupils to within-class ability groups for these curriculum areas, as a way of differentiating the work pupils undertake and of targeting support and resources.
- Setting represents a variation on this practice, in that pupils are allocated to across-class, rather than within-class groups, on the basis of their abilities in the two curriculum areas.
- Teaching methods differ in schools in which within-class ability grouping is used, compared with those which use sets. In the former, teachers tend to work with each group in turn, reviewing work, teaching new topics and then setting work for pupils to complete independently while the teacher moves on to another group. Whole class teaching was rarely observed in the teaching of maths and language in these schools. In the latter, whole class teaching, with time for pupils to work on tasks independently is the commonest approach.

5 Learning and Teaching

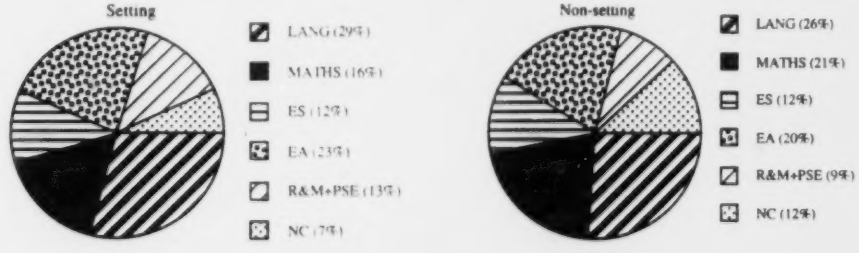
This chapter compares the findings from the setting schools with those from the non-setting in relation to four key elements which contribute to the quality of pupils' learning experiences: organisation and balance of the curriculum; learners' classroom experiences; teachers' teaching approaches; assessment.

5.1 Organisation and balance of the curriculum

One of the effects of setting is to mark out very distinctly the curriculum areas which are set from the rest of the school day. Traditionally, primary schools have operated an 'integrated' timetable, whereby the time devoted to particular curriculum areas has had a degree of fluidity, allowing teachers some scope to respond to the needs and interests of pupils and to follow an event or a process to a natural break or conclusion. Setting groups of pupils from different classes together is likely to interrupt, to some degree, the flow of work in each class. Defining and formally timetabling the amount of time available for set maths or language might thus lead to a shift in the overall balance of the curriculum.

In some of the setting schools there was a sense that the setting process had led to a greater emphasis on maths and/or language than before. The researchers cannot comment on the historical impact of these changes on the balances of the curriculum in the four setting schools. However, we found little difference in the overall balance in the four setting schools compared with the four non-setting schools, as is shown in Figure 5a.

Figure 5a: Percentage of time spent in various kinds of activity: averages overall for P7

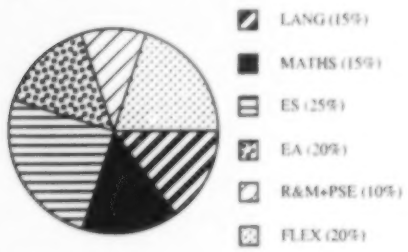


Key

LANG:	language	R&M+PSE:	religious and moral and personal and social education
ES:	environmental studies	NC:	non-curricular activities (routines such as taking the register, collecting money, clearing up, etc
EA:	expressiv e arts		

Figure 5b gives the curriculum balance in the 5-14 guidelines. Both setting and non-setting schools differ markedly in some ways from the recommendations.

Figure 5b: Time allocations proposed in the 5-14 Guidelines



Key
LANG: language
ES: environmental studies
EA: expressiv e arts
R&M+PSE: religious and moral and personal and social education
FLEX: flexibble element

5.2 Learners' classroom experiences

The goal of setting is to raise standards of achievement. One of the main ways in which setting is held to do this is by increasing teachers' scope for 'direct teaching', (see Chapter 1) and eliminating the time pupils spend working without direct supervision, as occurs when teachers teach a succession of attainment groups within the class.

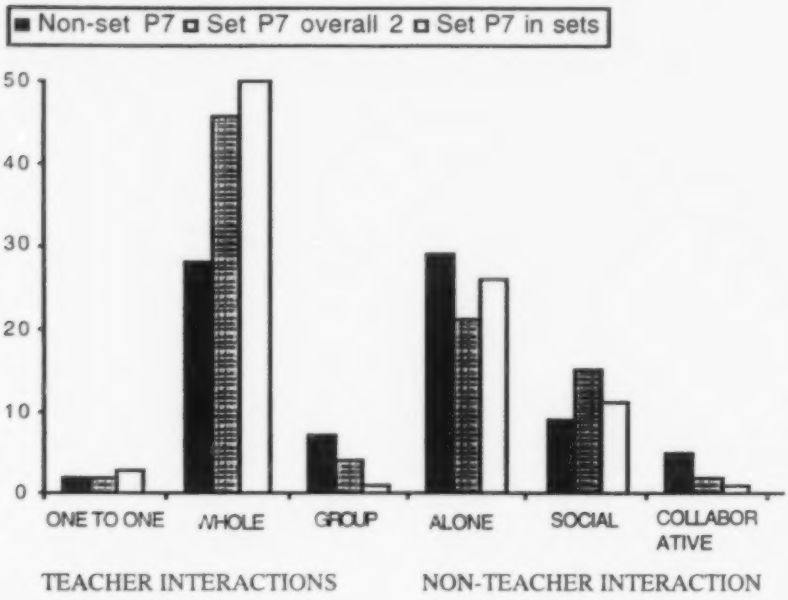
We might therefore expect to find from our study that: pupils spent more time working with the teacher as a whole class when in a set than when in their mixed ability class; there was an increase in the amount of time pupils were engaged on task, on the assumption that direct supervision is less likely to lead to pupil distraction than other approaches where pupils work on their own without direct supervision for part of the time.

Whole class teaching

We found that target pupils in the setting schools spent more time working with the teacher as a whole class than did their counterparts in the non-setting schools: in setting schools they spent about 50% of their time working with the teacher as a part of the whole class, compared with just under 30% of the time in non-setting schools. However, within setting schools whole class work was as widespread during times when pupils were with their own classes as it was when they were taught in sets. This may imply that teaching approaches adopted as a result of the introduction of setting have been taken up across the curriculum. Alternatively, it may be that setting appeals to teachers and schools where whole class teaching is a well-established practice.

Figure 5c compares the amount of time spent on various types of interaction by target pupils in the non-setting schools, with the time spent by pupils in setting schools, firstly across the whole observation period, and secondly specifically during set lessons. For further discussion of the types of interaction observed, see McPake *et al* 1999.

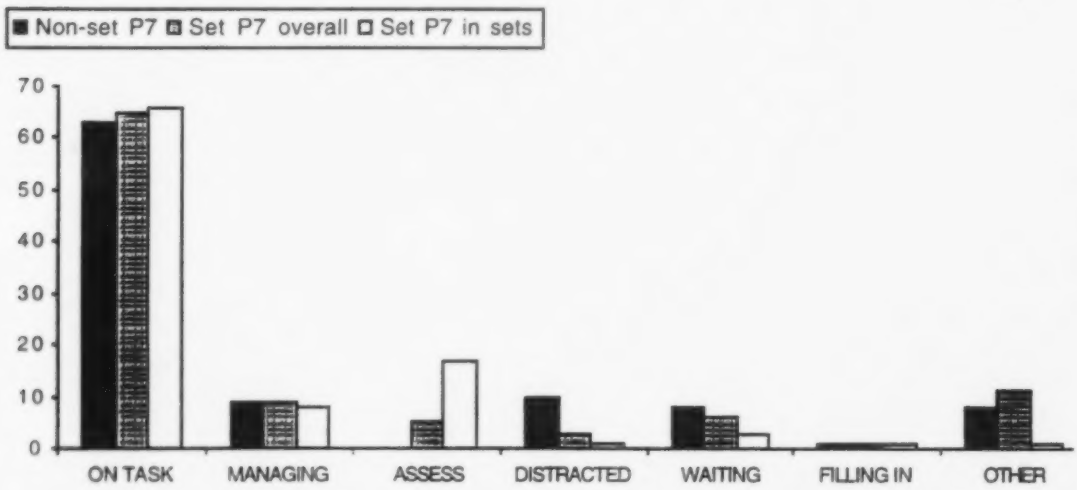
Figure 5c: Percentage of time spent by target pupils in set and non-set P7 classes on various kinds of interaction



Engagement on task

The increase in whole class work did not correspond to a rise in the amount of time target pupils were engaged on task, however. Target pupils in setting or non-setting schools spent a similar amount of time overall 'engaged on task' (around 65% of the time). Within setting schools, target pupils spent a similar amount of time engaged on task when in a set as at other times. This is the picture shown in Figure 5d.

Figure 5d: Percentage of time spent by target pupils in set and non-set P7 classes on various kinds of activity



5.3. Teachers' teaching approaches

The characteristics of 'direct teaching' set out in Achievement for All suggest that setting would bring to the fore particular features of teachers' practice:

- they should be able to spend more time on teaching, and less on task management (in particular because they do not need to give instructions to several different groups working on different tasks);

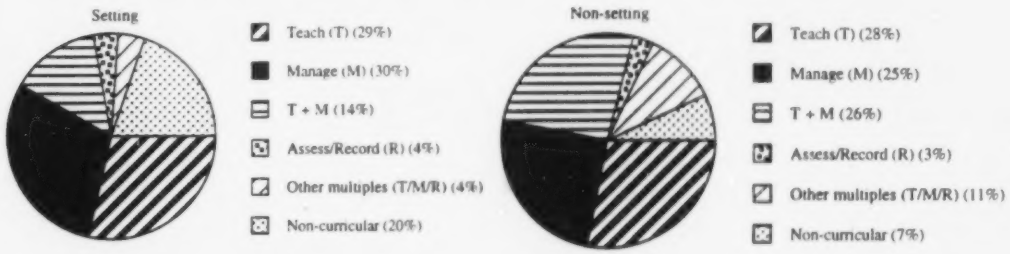
- teaching styles adopted when teaching sets are likely to be different from those used when teaching a mixed ability class.

Focus on teaching

In our study, we looked at the amount of time teachers spent on teaching, task management, assessing and recording pupils' progress and on other ('non-curricular') activities such as administrative or pastoral matters. For definitions of these terms and a more detailed account of what each of these categories involves, see McPake *et al* 1999, Chapters 4 and 5.

Our data show that, overall, the amount of time teachers spent on teaching and task management was broadly similar, but that there were differences in the extent to which they undertook these two activities simultaneously. While the amount of time teachers spent exclusively on teaching was the same (just under 30% of classroom time in setting and non-setting schools), teachers in non-setting schools were more likely to teach and manage the task at the same time, while teachers in setting schools were more likely to separate task management from teaching. This is the picture represented in Figure 5e below.

Figure 5e: Teachers' classroom activities in setting and non-setting schools: overall averages



A somewhat unexpected finding is that teachers in setting schools spent more time on non-curricular activities than those in non-setting schools. Although this varied from school to school the amount of time spent on non-curricular activities was consistently higher in the setting schools (ranging between 14% and 27% of classroom time) than in the non-setting schools (ranging from 3% to 10% of classroom time). Most of this non-curricular activity occurred outwith times when teachers were working with sets. As discussed in our previous report (McPake *et al.* 1999) most non-curricular activity relates to routine administrative matters such as collecting dinner money, distributing letters to parents etc. The observers encountered very little pastoral activity, in the extension study or in the original research. It is not clear why setting schools should spend more time on administrative matters than non-setting schools.

Teaching approaches

In previous discussions of 'direct' teaching, we have seen that this entails both an increase in the amount of whole class teaching pupils experience and close attention to questioning styles and pupil responses. In England, OfSTED inspectors found an increased use of both 'closed' and 'open' questioning in schools which set (OfSTED 1998). Closed questioning refers to routines where teachers ask questions - usually on points of fact - to which pupils are expected to supply the correct answers. Open questioning invites pupils to explain, imagine or speculate. In our observation schedule, our definitions of two teaching approaches - 'instructing' and 'facilitating' - can, broadly speaking, be regarded as including 'closed questioning' routines as among the techniques used for instruction, and

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'open questioning' among those used for facilitating learning. However, closed and open questioning are not synonymous with instruction and facilitating respectively. It is possible, though rare in our experience in the course of these two studies, to encounter open questioning in an instruction session. Conversely, some closed questions may feature in a context where a teacher is facilitating learning, if it is important to establish particular facts in the course of wider discussion. If our findings were to mirror those of OfSTED we might expect, therefore, to see an increase in both instructing and facilitating in setting schools compared with non-setting schools.

What we found was a marked increase in the use of instruction in setting schools (used for a little under 50% of the time teachers were teaching in setting schools, compared with around 25% in non-setting schools), but a decrease in the amount of time spent on facilitating (under 20% of teaching time in setting schools compared with around 40% in non-setting schools). The use of instruction was even more marked at times when teachers were teaching sets in setting schools when its use rose to almost 60% of teaching time. Descriptive observation notes taken at the time the research was conducted confirm this emphasis on closed questioning teaching styles when teaching sets.

5.4 Other characteristics of teaching sets

We have looked at features of teachers' classroom practice which derive directly from HMI commentary on 'direct teaching', which, it is held, setting facilitates. In England, OfSTED inspectors (*op. cit.*) noted a number of other aspects of 'good practice' observed in teachers teaching sets. These included:

- teachers' command of the subject
- structure and pace of the lesson
- the communication of clear expectations to pupils
- good relationships with pupils

Our observation schedules were not set up to enable us to make quantitative comparisons between teachers in setting and non-setting schools in relation to these aspects of teachers' work, but from our qualitative observation data, we are able to make brief comments on each of these aspects of classroom practice in the eight schools we visited.

Command of the subject

The OfSTED inspectors commented that in some of the schools they visited, teachers (particularly those working with the top sets) demonstrated an impressive command of their subject. Elsewhere in their report, they noted that the top sets were often taught by 'subject specialists' or 'co-ordinators', (i.e. primary teachers with a particular interest in and/or responsibility for this curriculum area) clearly a factor in this finding. In the four setting schools in our study, it was not necessarily the case that the teacher best qualified in the curriculum area in question would teach the top set (for reasons discussed in Chapter 5), and the extent to which the teachers we observed could be said to demonstrate command of any particular curriculum area was likely to vary as much in the setting as in the non-setting schools.

However, it did appear that teaching a set made certain, more obvious demands of teachers' subject knowledge than occurs when teachers are working with small groups. This was the case, regardless of the level of the set with which teachers were working. For example, because of greater opportunities for extended question and answer sessions when working with a set, teachers demonstrate more clearly their own understanding of

the teaching and learning processes taking place. Depending on the teacher, this may either illustrate their strengths or expose their weaknesses.

Structure and pace of the lesson

OfSTED inspectors found that in a number of the schools they visited, lessons were well-structured, with clear beginnings, middles and ends, and that the pace was always 'brisk'. We noted earlier that teaching sets requires a different approach to that developed in the context of the integrated day. Because the amount of time which pupils will spend with their sets is determined in advance, teachers need to work out how much ground they have to cover in each session and ensure that this occurs. This seems likely to promote a more focused approach and the 'brisk' pace noted by OfSTED.

In one of the four setting schools, there was a very specific emphasis on lesson structure and pace. When setting was first introduced, teachers received in-service training on the different teaching skills needed for teaching sets, focusing on a specific lesson pattern. The first 15 minutes (of an hour set lesson) should be taught from the front, revising the key elements from the previous lesson, testing to ensure that pupils had acquired and remembered the relevant concepts and skills, introducing new elements and practising these orally with the whole class. In the middle 'consolidation' phase, specific written tasks might be set and completed. Then, the last 15 minutes, comprises a review phase, again taught from the front, where the teacher revises what has been covered, checks comprehension, deals with points of difficulty, points to developments to come in the next lesson, and ends the session. This structure, combined with a very detailed scheme of work for the year, led to highly focused and speedily paced teaching.

Communication of clear expectations to pupils

The OfSTED inspectors noted that

> teachers had a clear idea of what was expected of them and of what they should expect of their pupils. These expectations, often expressed as targets, were both realistic and challenging in the context of the prior attainment of the pupils in the set. [op.cit.:14]

The school which devised the very specific lesson structure for the teaching of sets described above also developed very detailed schemes of work, closely linked to the 5-14 levels, to ensure that pupils covered all aspects of the curriculum and achieved what was expected of them. In this school, it was a matter of principle that all P7 pupils would achieve at least Level D in English and mathematics (and many would also have achieved Level E) by the end of the year. Specific targets were set and teachers were very clear about these and how they were to be met.

Teachers' expectations of what pupils needed to do to achieve these targets were also clearly articulated on a lesson-to-lesson basis. At the start of the year, the goals for the year were set out for pupils and their parents, for discussion at a parents' evening. In addition, pupils (with their parents) had the opportunity to set their own targets in relation to developing learning skills (for example they might decide that they wanted to be able to concentrate better by the end of the year or to learn to work amicably with others). Both school- and pupil/parent- identified targets were reviewed towards the end of the year. Thus, in this school, the practice of setting, the establishing of clear expectations and the setting of targets were interlinked.

Clear expectations can be communicated without the use of setting, however. In one of the non-setting schools, teachers actively involved pupils in regular reviews of progress and the setting of new goals, also very closely linked to the 5-14 levels.

In this school, 'target-setting' took place on a weekly basis. Groups of pupils working towards the same level in mathematics and English spent time together towards the end of each week reviewing their progress, first among themselves and subsequently with the teacher. The pupils had to identify the targets they had met and those which they had not managed to meet. They also had to assess how well they had tackled tasks, whether there were difficulties they still had to overcome, and how confident they would be of tackling the type of tasks they had been working on in a test. They then had to identify what their next tasks should be, for the coming week, including where they felt they would need support from the teacher and where they felt they could work on their own - either individually or as a group. They then set their targets for the next week. Their targets and their own assessment of their progress were written down in targets books.

For the teachers in this school, the target-setting process was a tool to help pupils take responsibility for their own learning. However, this did not imply a laissez faire attitude on the part of the teacher. During the target-setting sessions which the researchers observed, the teacher listened intently to the group's discussions and was ready to guide them if they encountered difficulties. Crucially, the process relied on very detailed pre-planning by teachers of the upper primary, in order to be able to provide the appropriate resources. In practice, the work the pupils set themselves probably differed very little from what the teacher herself might have set. Key factors in the process were that pupils learned to pace themselves appropriately and that the teacher did not have to spend substantial amounts of time on a daily basis explaining to each group of pupils what to do. The same kind of saving on management as is often held to occur with setting was achieved via a different route.

Good relationships with pupils

The question of teachers' relationships with pupils in the context of setting is complex. The literature on setting points to the issue of pupil self-esteem as problematic. The focus here has been mainly on the possibility that pupils in the lower sets can come to see themselves as failures, although there has also been some discussion of stress among high achieving pupils, particularly some high achieving girls who dislike working at the same high pace as the whole set. This suggests that teachers working with sets need to be particularly sensitive to pupils' perceptions of the situation and to the difference between ability and preferred pace of learning, which do not always go together. Furthermore, teachers of sets will be working with some pupils they know well (from their own class) and others they know much less well (those from other classes), and being aware of such matters may therefore be more difficult.

Another argument - that put by OfSTED - is that pupils working in sets feel more confident because they are working at a level which fits their own needs, and this is likely to promote positive relationships between pupils and the teacher of their set.

In our study, we found it difficult to identify elements of pupil-teacher relationships which could be attributed specifically to setting. Dynamics of relationships were likely to be influenced by a number of factors: whether for example, the set teacher was also the class teacher of the target pupil observed, whether the set teacher was also the headteacher or depute head, how individual pupils felt about setting (within the same schools, and even within the same sets, some pupils found it a positive and others a negative experience), how the teacher felt about setting (even if this was not overtly communicated to the pupils). As with any other way of organising learning, some pupils benefited socially as well as academically from setting while others experienced alienation. Teachers needed to be alert and responsive to problems in all contexts.

5.5. Assessment

There are a number of reasons why the proportion of time spent on assessment in schools using setting might be expected to increase. Firstly, teachers need an accurate measure of attainment in order to be able to place pupils in appropriate sets, and, subsequently, to monitor progress and review placements as relevant. Secondly, given the explicit focus on the raising of attainment, regular assessment would help to evaluate the effectiveness of the approach.

There were differences in the observed use of assessment between setting and non-setting schools. In the non-setting schools, the amount of time spent on the most obviously observable forms of assessment - eg tests in class marked on the spot - was negligible. (In our companion report, Teachers and pupils days in the primary classroom, in Part 1 of this volume, we note, however, that other types of assessment - for example, the marking of pupils' work and recording of progress outside classroom hours - was taking place, although it did not occur during the observed sessions.) In setting schools, classroom-based 'instant' assessment was a feature of set lessons. On average, just under a fifth of target pupils' time was spent on assessment when in sets, although there was considerable variation among the four schools (from 8% to 32% of target pupils' time). Approaches varied too. A mental maths test at the start of each lesson was a regular feature in two of the setting schools. We observed a variety of methods of assessing numeracy strategies across all of the four schools, such as oral tables practice of up to the twenty-four times table and square roots (in the top set) which involved pupils standing until they got an answer correct; individual pupils devising assessments for the whole class and reading out their own questions to the class; and also a written programme devised by the headteacher based on graded assessments on workcards.

It is difficult to assess the impact of the tests of mental skill and memory which we observed in the setting schools. On the one hand, pupils in these schools may develop, as a result, a more secure grasp of certain basic blocks of language and mathematics (most notably spelling and tables). On the other, one might question whether it is appropriate to spend a fifth of the time available for these subjects on these basics, given the range of other types of knowledge and skill which pupils need to acquire in these curriculum areas.

As in the non-setting schools, teachers in the setting schools used other forms of assessment too, but these were more difficult to observe. For example, a teacher 'patrolling' the classroom while pupils work may be mentally assessing pupils' progress as s/he does so, and may subsequently make some record of these observations. Teachers may similarly be making mental notes when engaging in question and answer sessions with pupils, and they also assess written work on a regular basis. However, in the course of observation of P7 classes we rarely saw teachers marking written work or recording their judgements (on average, under 5% of class time in setting schools and non-setting schools). We came to the conclusion that marking and recording occurs mainly out of class time and were therefore beyond the scope of our study.

Because much assessment occurred outwith classroom hours, the researchers cannot say whether other types of assessment were more common or more rigorously administered in setting schools than in non-setting schools. Teachers from setting schools with whom we talked with were certainly conscious of the need to keep up to date with student progress and to review their position within the set or within attainment groups on a regular basis. However, concern about progress was a feature of both groups of schools. It is not clear that the results of the 'instant' assessment practices described above have any bearing on student placement within sets. Their goal seemed rather to be to encourage pupils to memorise key basic features of each curriculum area.

5.6 Summary

- The balance of the curriculum was similar in setting and non-setting schools. In both groups of schools there were some differences between the balance in practice and what is recommended in the 5-14 guidelines.
- Whole class teaching was more commonly used in setting schools than in non-setting schools.
- There was no difference in the amount of time pupils from each type of school spent engaged on task.
- There was no increase in the amount of time teachers in setting schools were able to devote exclusively to teaching.
- Teaching in setting schools was characterised by a marked emphasis on instruction and a decrease, compared with non-setting schools, in the time spent on facilitating.
- Instant assessment (mental arithmetic, spelling and other types of memory test) was a feature of teaching in sets.

6 Managing Setting

6.1 Introducing setting

In all four schools in our study, setting was formally introduced following the appointment of a new headteacher, and was thus closely associated with the changes which the new heads wanted to bring about in their schools. In several cases, the arrival of the new headteacher coincided with a period in which schools were consolidating changes introduced by 5-14, and the impetus to introduce setting was seen as something to emerge from a review of learning and teaching practices in the context of 5-14. In this way, teachers were involved from the outset in discussing the possibility of introducing setting and working through the implications of doing so.

All of the schools began setting as an experiment, usually working with just one year group and with one subject area. Expansion to other subject areas and to other year groups occurred relatively gradually. In-service training which focused on ways in which setting might enable teachers to enhance teaching and learning in their classrooms was provided in some of the schools. In addition, in one of the schools, time was provided for class teachers to collaborate in developing a joint course structure, to ensure that all pupils covered the full curriculum, and that pupils moving between sets would have a coherent experience. One headteacher felt it was important to allow teachers to explore the negative aspects of setting at an early stage too, so that there were opportunities for objections to be raised and ways of accommodating them to be found.

These schools' experiences suggest that it is important to plan carefully for the introduction of setting and to ensure that teachers are committed to the change:

> *... it needs the agreement of each of the teachers involved to make it work. If there's one teacher who is feeling this is an imposition and she doesn't want to make it work then the whole thing doesn't gel together properly.* (Headteacher)

6.2 Developing policy and documentation

Although headteachers provided a clear rationale for setting in each of the schools in the study, schools were able to provide relatively little information about setting on paper. This implies that it could be difficult for parents to find out about principles and practices without asking a teacher or the headteacher directly, and also that new teachers, without the benefit of the inservice training and other discussions which occurred when setting was introduced, could find it difficult to understand how and why the system operated in the school. There was some evidence of probationers, temporary staff, or new teachers experiencing difficulties of this type and some discussion among other staff of the need for initial teacher education and further inservice courses to cover setting.

Lack of documentation also meant that it was difficult to keep track of changes to principles and practices over time, and to ensure that all teachers were operating in the same way. For example, in one school, the class teachers of one year group had decided to rotate sets on a termly basis, while the other staff kept the same set for the whole year. Given that setting was relatively new in this school, the headteacher felt there needed to

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be scope for teachers to experiment with different approaches and thus to take ownership of the practice. At another school the P7 teacher did not know the criteria being used by the head to allocate children to sets. Both these examples suggest there could be gaps and inconsistencies in understanding and therefore practices among different members of staff. It would therefore seem important to provide a written account of the rationale and of procedures, to ensure continuity of experience for pupils and the sharing of best practice.

6.3 Grouping strategies

The way in which pupils are divided into sets is clearly a key issue for schools practising setting. It is important that pupils' attainment is accurately assessed at the outset. The system also needs to be sufficiently flexible to allow for pupil movement up or down, depending on their subsequent progress.

All of the schools used a variety of methods to determine pupils' prior attainment at the point at which they were allocated to sets. National test scores were regarded as an important indicator, particularly in schools where the goal of setting was, ultimately, to produce improvements to the school's position in relation to national tests. However, teachers' own observations and opinions about their pupils' attainment could also be taken into account. For mathematics, schools were also able to draw on end of block assessment and other internal test results. It appeared less common for schools to be able to make use of similar information in relation to language.

In many cases, teachers had already been operating attainment groups within their own classes. These also gave some indication of the appropriate set to which each pupil should be allocated. However, as one headteacher indicated, it was important for teachers to recognise that pupil allocations within classes were relative: a pupil in the top group in one class might be in the second highest group in another, depending on the distribution of attainment in each class.

Having determined attainment, pupils were then allocated to sets. Where these were across each year group, they represented a broad banding of the pupils across the year. Where they were across more than one year group, it was possible to achieve slightly narrower attainment bands although this was not always realised in practice if there was a reluctance to place a child in a set largely comprised of much younger peers.

When setting was first introduced, teachers and headteachers noted that it was important to be aware that some children might have been misplaced, and to be prepared to move them quickly if this turned out to be the case. This appears to have occurred relatively rarely, in reality. The researchers noted that examples of pupils being re-set always referred to pupils who needed to be placed in lower sets: in other words, it seems that original decisions are likely to be over-optimistic, in the case of one or two 'borderline' pupils. In addition, the explanations for moving pupils usually related to their difficulty in keeping up with the pace of the work, rather than with the conceptual content. This implies that, in determining pupil allocation, teachers need to look not only at attainment but also at issues such as concentration, application, and responses to pressure of work, particularly given that one of the arguments for setting is to push up the pace for high, and sometimes middle, attaining pupils.

In some schools, pupils were reported as having requested a move themselves (again, these were likely to be downwards moves) because of anxieties about keeping up with the rest of the group. Other research has found that some high ability girls can be particularly

susceptible to this kind of anxiety when setting is introduced, and that some prefer to work below their level (Boaler, 1997). Schools thus need to think carefully about the reasons for such requests and the implications of moving students who might have such concerns.

Once setting was established, the need to move pupils appeared to diminish. It was still important to review pupil progress regularly, although the frequency of review varied from once a fortnight in one school, to once a year in another. However, particularly in schools where setting was practised from P2 onwards, teachers found that the gaps between the sets widened over time and it was therefore increasingly less likely that pupils could make a move upwards. Moving downwards was more feasible but also rare.

The opportunity to move pupils depends not only on their progress but also on the availability of a space in the next set above or below the one in which they are currently placed. In most of the schools, flexibility was, for these reasons, fairly limited. Particularly in schools where the top and middle sets were larger and the bottom set was smaller, in order to allow teachers more individual contact with pupils needing the most support, moving one pupil up almost inevitably required another pupil to move down. It was not clear whether such reciprocal arrangements were always easy to establish. On the whole, teachers were reluctant to move pupils downwards (except in the situations mentioned above where pupils were not keeping pace with the work): thus an adjustment requiring a pupil to move down, to make way for another pupil moving up, was difficult to accept.

6.4 Teacher allocation

Another important policy decision schools have to take when they decide to introduce setting is how teachers are allocated to the sets they are to teach. The OfSTED report (1998) suggested that in England, it is common practice to allocate the teacher with specific responsibility for the area of the curriculum in question to take the top set, as this teacher would be most knowledgeable and best qualified to stretch the most able pupils.

In our study, headteachers applied other considerations to teacher allocation. In one school, it was policy to rotate teachers across the sets on a yearly basis, so that all teachers would have experience of the full ability range in the curriculum areas which are set. In another school, the headteacher's preferred option was for the most able teacher to teach the middle group, as the pace for the whole year group would be set by the middle, 'pulling the bottom up and pushing the top on.'

On several occasions, headteachers referred to the value of being able to allocate teachers to the sets for which they were best suited. In one school where pupils were set across year groups, one set contained a group of pupils with particularly challenging behaviour. The teacher allocated to this set was one with a good reputation for being able to meet such challenges. Similarly, in another school, the headteacher noted that the teacher allocated to the bottom set had to be particularly well prepared.

> *This year, Ms C is working with the bottom set. I said to her, 'You will need all the your teaching experience to make this work, and it will test you too.' It's the bottom set which is the hardest struggle, getting the bottom pupils up to national standards. It's not hard to get ideas over to the top set.* (Headteacher)

Thus, in practice, a range of different strategies were used to allocate teachers to sets. The principles of allocation were sometimes in conflict with each other. For example the principle of rotating teachers to ensure that they have experience of the full range of abilities does not sit well with the view that some teachers are better suited to particular groups than others. However, in reality, a compromise was reached.

6.5 Resources

In some schools, one of the intentions of moving to setting was to enable teachers to review the materials they were using and to develop a course for the whole ability range, based on the range of resources available. In such situations, a redistribution of resources was sometimes necessary, but there was little evidence of a need to make major changes to the range of resources already available within the school. In one school, however, the scheme used required frequent topic changes and led to constant movement of resources from room to room.

Another problem was the question of suitable space. In most cases, when working in sets, pupils from different classes had to regroup in the various classrooms from which they had come. In theory, this requires each set to be the same size as the class normally working in the room, as the number of desks and chairs will determine the number of pupils who can work there. In practice, sets were often of different sizes, some bigger and some smaller than the average class. Furthermore, in schools where more sets had been created than there were classes, additional space for the extra set had to be found. Some schools had teaching space sufficiently flexible to accommodate differences in the size of sets or the number of groups. Others experienced difficulties, and required children to bring extra desks and chairs with them from outside the classroom whenever they were working in sets, losing time and creating some very cramped working situations.

As reported in other studies, setting can create logistical problems, linked to the movement of groups of pupils around the school. Teachers were aware of the potential for losing time in this way, and in some schools, detailed arrangements to help ensure minimal time loss had been made. Even so, problems inevitably arose. In one school, all sets lost 15 minutes of set maths time because one of the teachers had to deal with a complicated administrative matter concerning her own class before she could admit pupils waiting to join the set she taught, or release those from her class who needed to join other sets.

The opportunity of using additional teachers was one of the most valued resources in schools where this was possible. This allowed all the teaching sets to be smaller than normal classes and contributed to teachers' sense of 'being able to get on with teaching' when working with a set. In contrast, in one school where additional teachers had been available when setting was first introduced but where these were subsequently lost following budget cuts, questions about the efficacy of setting had surfaced. Learning Support staff were occasionally used to increase the number of teachers available for taking sets but this practice may be less common than appears to be the case in England (OfSTED 1998).

6.6 Communication with pupils and parents

Schools in our study differed in the extent to which they informed parents and pupils about their policy on setting or discussed the reasons for setting with them. In one school, newsletters and parents' evenings had been used to inform parents about this development, but in the others, comments suggested that they were cautious about parental reactions to setting. There was concern, for example, that parents might confuse setting with streaming, or that parents might react negatively to their children being placed in sets with younger pupils.

The school which had most actively canvassed the views of parents and pupils had sent a questionnaire to both groups, to which there was a very high response rate. They had also had discussions with pupils. In its communications with parents, the school focused on achievements, pointing in particular to the progress made by pupils in the lower sets.

Letters were sent home whenever a pupil passed a level test. In addition, parents were invited to collaborate with teachers on a goal setting sheet for their own children. These sheets note, among other things, children's application and effort, as well as academic targets, so that parents were aware of progress in these aspects of their children's work. The headteacher noted that approximately a third of the children in the school came from an area of marked economic deprivation (while the remainder came from an affluent part of the city) and that support from the parents of these children was high.

In the school which set across year groups, the headteacher explained setting to parents at parents' evenings as an approach in which each pupil would have a class teacher and a maths teacher. This headteacher noted that issues relating to mixed age groups are of greater concern to parents than being taught maths in sets.

Authority advisers were wary of explaining setting to parents in detail, feeling that in any case, parents were not well-informed - or interested - in teaching strategies.

> *Parents may not be fully aware that generally pupils are used to working in groups, both mixed and also ability groups ... Most parents aren't interested in the detail and are generally happy to leave that to the school.* (Authority Adviser)

Awareness of pupil perspectives also varied. In some schools, staff were convinced that pupils were largely positive about setting, but it was not clear that there had been any systematic exploration of this point. In the school which had actively sought pupils' views, responses were reported to have been positive, in particular from pupils in the lower sets.

> What the children said was, yes they were very aware of who was in Set 1 and who was in Set 2 and 3 and 4. But the Set 4 children told me that they knew anyway when they were in groups within the class. They also said things like, 'I can answer in this group without feeling foolish.' And that was important for us when we spoke to Set 4 because we thought that if it was really going to affect their self-esteem so badly we've got to be very careful. (Headteacher)

Our interviews with pupils in the course of this research suggested more ambivalent feelings. Their preference for sets or their 'ordinary' class was affected by their liking or otherwise of the personality or style of a teacher, and by their attitudes towards different curriculum areas. Within our small sample of 17 pupils, all the above average pupils preferred working in sets for maths, but all but one of the below average pupils preferred their ordinary class. In the case of this latter group, set teachers appeared to be unaware of these pupils' feelings. Careful monitoring of pupils' views might help to clarify such dissonance between teacher and pupil.

6.7 Evaluating the effects of setting

The main reason for introducing setting in the four schools which participated in this study was as a means of raising standards of attainment. However, as we have seen from the review of the literature on setting (Chapter 3), demonstrating that setting can raise standards of attainment has not proved to be easy. In experimental studies, the difficulty has been to find matched groups of pupils to provide a control element. Local authorities may be in a better position than most experimental researchers to identify de facto 'control' schools against which to measure the effectiveness of setting within their own authorities. However, of the four authorities whose schools participated in the study, none had conducted any formal evaluation, although it was known that setting was practised in a substantial minority of schools in the two urban authorities concerned. In one, setting was believed to have increased from around 15% of schools to 33% between 1997 and 1998; and in the other, about a quarter of all primary schools were thought to use setting.

The representatives of the authorities who were contacted by the research team could be described as 'taking a watchful interest' rather than actively seeking to establish the effectiveness of the approach. They were aware that the schools which practised setting were monitoring the results for their own purposes and that some were claiming that setting had raised attainment. One representative made clear that any active interest on the part of the authority would be interpreted as implying a policy position, and therefore neutrality had to be maintained:

> *There is no single solution to current concerns about teaching and learning. We don't say that we approve or disapprove. It's for heads to decide.*
>
> (Head of Education Services)

For schools which decide to make use of setting, it is necessary firstly to show that standards rise once setting is in place; and secondly, to establish that this rise can be attributed to the introduction of setting rather than to any other changes in the same period. This therefore entails detailed monitoring and regular evaluation.

The schools which participated in the study all monitored standards of attainment in some form from year to year. One problem, however, was that they had not necessarily monitored standards in the same way before they introduced setting. One headteacher, for example, pointed out that they had introduced national testing in the school at the same time as setting, and therefore could not make 'before' and 'after' comparisons on this measure. A second problem, for three of the four schools, was that standards of attainment were lower than the national average, reflecting, at least in part, the extent of social disadvantage of the areas in which the schools were located, as well as the problems with previous models of organising learning which setting was intended to counter. In these schools, headteachers thought it would be some time before the benefits of setting - in terms of raised standards - became apparent. (Setting had been in place in these schools for between one and six years.)

In the fourth school, where standards of attainment were already high, but could still - according to the headteacher - be improved, setting was held to have made a difference. Stiffer targets were set - and met - each year. The headteacher was convinced that this was achieved by explicitly linking setting and target-setting. Setting without the focus of the targets might not, automatically, have achieved the same results; and, the headteacher recognised, linking another approach very explicitly to target-setting might have been equally effective. In his view, standards are raised if specific targets are set and a detailed strategy for achieving them is established.

6.8 Summary

Setting presents a number of challenges to school managers in terms of preparation for the introduction of setting, organisation and evaluation. The following recommendations are based on the experiences of class and headteachers in the four setting schools.

Introducing setting

- Careful planning is necessary and it is important to ensure that teachers are committed to the principle and share a common understanding of what is involved.
- A written account of the rationale for setting and the procedures in place would help to ensure continuity of experience for pupils and the sharing of best practice.

Grouping strategies

- To obtain sets of pupils with similar attainment levels, clear criteria and careful assessment are required. Arrangements need to be reviewed regularly to take account

of pupils' progress and to adjust sets accordingly. The system needs to be flexible enough to allow for pupil movement.

Teacher allocation

- A number of (sometimes conflicting) principles by which teacher allocation to sets can be decided were raised in the study:
  - the importance of rotating teachers across sets to ensure that teachers have experience teaching at all levels and do not lose contact with these class members entirely in the set subjects;
  - the critical placing of the teacher with the best understanding of the subject (the case was made by different headteachers for placing this teacher with the top, the middle and the bottom set);
  - the importance of matching teaching skills with the personality mix of the particular groups of pupils in each set.

Resources

- Careful consideration needs to be given to issues of space (particularly if some sets are bigger than the average class size), to the time and logistics of moving pupils around the school and to the deployment of additional teachers as a way of increasing the number of sets while reducing set sizes.

Communication with pupils and parents

- Some schools and some authorities have been wary of explaining in detail what setting involves, but the experience of one school which actively sought the views of parents and pupils was that these were predominantly supportive.

Evaluating the effects of setting

- Given that the aim of setting is to raise standards of attainment, it is important that schools and authorities evaluate the effectiveness of the approach. Earlier research has shown that this is a complicated task. Where standards have risen, this can be attributed to a number of factors, including the use of setting, but setting on its own, without making other changes, is unlikely to be effective.

7 Conclusions

7.1. Summary of the research findings

The goal of setting is to raise standards of attainment, principally in mathematics and English language. Setting is held to achieve this by facilitating greater teacher engagement in 'direct teaching'. This entails a whole class teaching approach promoting an intensive and challenging level of teacher interaction with pupils. Because of the narrower attainment range within each set, it is argued that there is less risk of low attaining pupils finding themselves out of their depth in such interactions or of high attaining pupils becoming demotivated because the pace is too slow and the material undemanding for them.

In our study, we found that more whole class teaching occurred in setting schools, both during set lessons and in the mixed ability classroom, than in non-setting schools. Teaching styles in the two groups of schools were also different: in setting schools, 'instruction', with a focus on the transmission of factual knowledge, predominated. In non-setting schools, 'facilitating', in which pupils were encouraged to develop their ideas and find solutions themselves, was more common. However, pupil engagement on task which, in this study, is regarded as a 'proxy measure' for learning (see McPake *et al* 1999 for further discussion of this issue) was the same in both groups of schools. Thus we have no evidence that pupils in setting schools worked harder or learned more than pupils in non-setting schools.

The data suggest that what pupils were learning in each group of schools was different, in some respects at least. For example, in mathematics we have noted an emphasis on numeracy in the setting schools, and, more generally, a focus on 'instant' assessment which prioritises memorisation of key aspects of the subject (such as multiplication tables, lists of square roots, spelling, etc.) The shift from facilitating to instructing also implies different experiences and different values in terms of learning how to learn.

It is not possible, on the basis of the type of study we have conducted, to say whether the use of setting in the schools we visited had raised standards of attainment. This would require detailed analysis of assessment records, dating back to the time before setting was introduced. It would also be necessary to establish that any rise in standards could unequivocally be attributed to the introduction of setting and not to other changes.

Clearly, if setting raises standards of attainment, whether directly or indirectly, pupils benefit from such a development. Given that this has not been established, are there other kinds of benefits for pupils? Proponents and opponents of setting have commented on a range of positive or negative effects. For example, while proponents argue that the experience of success at their own level is likely to raise low achievers' self esteem, opponents argue that being labelled as a member of the 'bottom set' is likely to damage it. Our study suggests that such benefits or disadvantages are unlikely to be as clear-cut. Pupils' views of their experiences in their mixed ability classes or in their sets appear to be influenced by a range of personal factors such as their relationships with the teachers and the other pupils in the class or set, rather than simply by the form of classroom organisation concerned.

7.2 The need for debate

Our experiences of detailed observation of 16 primary school classes over the past three years suggests that none of the effects attributed to setting is achievable only through the introduction of setting. What our data imply is that introducing setting may bring about an enhanced focus on:

- whole-class work;
- instruction based teaching;
- 'instant' assessment and the factual knowledge and memorisation skills which this promotes;
- targets and pupils' progress towards these.

However, it is important to recognise that these are features of non-setting schools too, and also that setting schools used other learning and teaching approaches apart from those listed above. What is described here is a shift in emphasis rather than two opposing visions of learning and teaching in Primary 7.

The research raises a number of questions requiring further debate:

1. Is this shift in emphasis described above beneficial? Particularly in relation to subjects such as mathematics and English language, what is the appropriate balance between the acquisition of factual knowledge and the development of abstract or conceptual understanding, and between the respective learning skills, such as memorisation or problem-solving, which these aspects of the subjects in question require? Is change necessary?
2. How does such a shift in emphasis relate to assessment outcomes? Are pupils who have experienced more instructional teaching, who have memorised more facts and who have developed their memorisation skills likely to do better or worse on the range of assessment measures they will encounter in the immediate future and in later years?
3. If the real benefit of setting is that it encourages teachers to focus their attention more closely on learning and teaching matters, is setting the best way of achieving this?
4. Is there a model of setting which is more effective at raising attainment? The schools observed in this study had different ways of organising setting, selecting pupils and staff to work together in sets and of supporting teachers in establishing and maintaining setting. What kinds of monitoring and self evaluation would help schools and authorities to gauge the effectiveness of their setting or non setting strategies?

The use of setting in Scottish primary schools is a relatively recent phenomenon and should be regarded as experimental rather than as an established alternative model. It is clearly attractive to some headteachers and to some local authority advisers. Others are more cautious or more sceptical. The goal of this research has been to identify key issues for debate about the purposes and likely effects.

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Appendix A: Research Methods

This research into the impact of setting on four Primary 7 classrooms was conducted as the extension to an earlier study of teachers' and pupils' experiences of the primary classroom (further details of which are to be found in McPake *et al.* 1999). In the earlier study, two researchers spent one week in each of 12 primary classrooms: four of these were Primary 1 classes, four were Primary 4 and four were Primary 7. The four Primary 7 classes from this original study served as the basis of comparison for the four Primary 7 classes observed in the course of the extension.

The school sample

In the original study, schools were selected for participation on the basis of geographical location and school size. Similar criteria were applied to the selection of the four schools to participate in the extension study, following advice from HM Inspectors and from local authority advisers about schools in which setting was in use. Further details about the four schools which participated in the extension study are to be found in Appendix B.

Data collection

Data collection methods used in the two studies were similar, to facilitate comparisons. In both studies, the researchers observed the classroom activities of the selected classes. During this time, one researcher observed the activities of the class teacher or, when setting was in operation, of the teachers teaching the sets, in rotation. The other researcher focused on the activities of six 'target pupils'. These pupils were selected in advance, in collaboration with the class teacher who identified boys and girls of high, average and low ability. The pupil observer also followed a rotating sequence to ensure that all target pupils were observed on a regular basis.

Two types of observation were carried out by both researchers. The first involved the use of a structured observation schedule based on time sampling, and provided most of the quantitative data referred to in this report. The second type of observation, which alternated at regular intervals with the first, was a long hand, descriptive account of events in the classroom. This therefore provides qualitative data on which the researchers have been able to draw for examples or further information about the nature of classroom practice.

In addition, a video recording of one of the five days of the researchers' visit was made, using a 'static' camera (i.e. one which was fixed in position and left to run automatically). This record enabled researchers to review significant events and to discuss their interpretation of these events as a team.

The researchers also interviewed each of the target pupils on at least one occasion during the week of their visit. Photographs taken with a digital camera and shown shortly after they had been taken provided a stimulus for the discussion. Class (or set) teachers were also asked to comment briefly on the event or activity represented in the photograph, and their perspective could be compared with that of their pupils. In the case of the setting

schools, these photographs were always taken during set lessons. In the non-setting schools, they were taken in a variety of situations.

Towards the end of the week, the researchers conducted a more detailed interview with the class teacher, aimed at identifying aspects of the teacher's underlying 'philosophy' of teaching and other aspects of their practice which could not easily be understood through observation alone.

In the setting schools, the researchers also conducted detailed interviews with the four headteachers on the rationale for setting in their schools. Telephone interviews with representatives of the education authorities concerned were also carried out, to gain the authority perspective.

Data analysis

All data were analysed with the intention of identifying the effects of setting. This entailed comparing similar data from the setting and non-setting schools, and also interrogating the interview data from the setting schools to establish participant perspectives.

In relation specifically to the quantitative observation data, which were analysed using SPSS, comparisons were made between the overall pictures of teacher and pupil activities in the setting and non-setting schools, and between times when pupils and teachers in setting schools were working in sets, and times when they were working in the mixed ability classrooms.

Appendix B: Characteristics of the Four Setting Schools

	A	B	C	D
Location	Urban	Urban	Suburban	Rural
Overall school size	Large	Small	Medium	Medium
Catchment	Mixed: some very affluent, some very disadvantaged families	Substantial number of disadvantaged families	Substantial number of disadvantaged families	Substantial number of disadvantaged families
Age range for setting	From P3 upwards	From P2 upwards	From P5 upwards	P7 only
Setting within or across year groups	Within	Across	Across	Within
Set sizes	Lower set deliberately kept small sizes	Similar sizes	Similar sizes	Lowest set deliberately kept small
Use of additional teaching staff to reduce set sizes	Yes	No	No	No, but learning support teacher allocated to support teacher of lowest set
Curriculum areas using setting	English and maths	Maths Writing (English)	Maths	Maths Spelling and dictation (English)
Frequency of setting (hours per week)	Maths: 4 English: 4	Maths: 5 English: 1	Maths: 4	Maths: 2 English: 2

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